DOCUMENT RESUME

ED 091 138 RC 007 902

AUTHOR Haskins, Barbara P., Ed.; Smith, Julian, Ed.
TITLE Marksmanship for Young Shooters: The Air Rifle as an Instructional Tool.
INSTITUTION American Association for Health, Physical Education, and Recreation, Washington, D.C.
PUB DATE 60
NOTE 27p.; For related documents, see RC 007 899-901 and RC 007 903

EDRS PRICE MF-$0.75 HC-$1.85 PLUS POSTAGE
DESCRIPTORS Curriculum Development; Elementary Schools; Equipment; Games; History; *Marksmanship; Mechanical Skills; *Outdoor Education; *Program Planning; Recreational Activities; Resource Materials; *Teaching Guides; Technical Education; *Techniques
IDENTIFIERS *Air Rifle; Shooting

ABSTRACT

The purposes of this manual, which is part of a series on outdoor education, are: (1) to show some ways in which the spring-type air rifle can be used as an instructional tool in the school curriculum (especially in the elementary school) and in recreational and agency programs involving young shooters and (2) to provide information on the mechanics of and procedures for using the spring-type air rifle. It is a curriculum and program guide, not a training manual, which should be supplemented with "Shooting and Hunting" (a preceding manual in the outdoor education series) and other related publications. It is divided into two parts: (1) The Spring-Type Air Rifle as an Instructional Tool and (2) Teaching Marksmanship. Part 1 discusses planning the program, curriculum use, and special projects. Part 2 discusses the history of guns, gun handling, setting up the range, shooting skills, range procedures, and field training. (NQ)

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Marksmanship for Young Shooters

THE AIR RIFLE AS AN INSTRUCTIONAL TOOL

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THE OUTDOOR EDUCATION SERIES

Marksmanship for Young Shooters is fifth in a series of books and pamphlets on outdoor education, a most significant recent development in education. Other titles include *Shooting and Hunting* (a comprehensive instructor's guide for all age levels), 96 p., $2.00; *Casting and Angling* (for the accomplished fisherman and the novice), 52 p., $2.00; *Outdoor Education* (for the elementary school teacher), 32 p., 75¢; and *Outdoor Education for American Youth* (for the secondary school teacher), 159 p., $2.50.

Library of Congress Catalog Card No. 60-53116

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A Department of the National Education Association

1201 Sixteenth Street, N. W., Washington 6, D. C.

PRICE: $1.00

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The Spring-Type Air Rifle As An Instructional Tool

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AMERICAN ASSOCIATION FOR HEALTH, PHYSICAL EDUCATION, AND RECREATION. *Shooting and Hunting.* Washington, D. C.: The Association, 1960. 96 p. illus. $2.00. The supplementary manual to this text, giving basic information on shooting and hunting skills.

FILMS

It is recommended that film requests be written on the letterhead of the school, club, or organization by which the pictures are to be shown. When possible, an estimate should be given of the audience for which a picture is being requested. Film requests should be submitted three or more weeks in advance, clearly specifying the preferred showing date plus one or two alternate showing dates.

ON TARGET FOR SAFETY. 13 min., sound, color 16 mm. Ideal Pictures, Inc., 58 East South Water Street, Chicago 1, Ill., or Training Services Department, Daisy Manufacturing Company, Rogers, Arkansas. Free loan. The fascinating story behind the Omaha Safety Council city-wide organization of Junior BB Gun Clubs, resulting in a 86% decrease in air rifle "incidents." Shown are boys and girls competing for trophies and medals in the annual BB gun tournament at Offutt Air Force Base.

GUN SAFETY IN THE PUBLIC SCHOOLS. 10 min., sound, b&w. Training Services Department, Daisy Manufacturing Company, Rogers, Arkansas. Free loan. Shows the organization and conduct of the Daisy Spring-Type Air Rifle Gun Safety Program for boys' and girls' physical education and recreation activities. Emphasis on teacher training.

SHOOTING SAFETY. 25 min. (13 min. version also available). 16 mm., sound, color. Sportsmen's Service Bureau, 250 E. 43rd St., New York 17, N. Y. Postage only. Excellent advice on all phases of gun handling. Good for public relations on Junior Shooting Safety Program as well as for instruction.

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Little Rock, Arkansas

Foreword

MARKSMANSHIP FOR YOUNG SHOOTERS is another manual in the Outdoor Education Series. It has been especially prepared to show how the teaching of the spring-type air rifle can be incorporated very easily into school curriculums and clubs, and community agency programs. It also demonstrates its usefulness as an instructional tool. The guide will be of practical assistance to teachers in elementary schools, physical education instructors, recreation leaders, camp counselors, and others who have opportunities to use this type of gun for educational and recreational purposes. *Shooting and Hunting*, a preceding manual in the Outdoor Education Series, contains much basic information which is applicable to the use of the spring-type air rifle. *Marksmanship for Young Shooters* will augment *Shooting and Hunting* for those who need additional information on curriculum and program planning in teaching young shooters, both boys and girls.

Much of the interest in teaching correct marksmanship with the spring-type air rifle was stimulated by the Outdoor Education Project of the American Association for Health, Physical Education, and Recreation, a department of the National Education Association. The Project to date is a cooperative venture with the Associated Fishing Tackle Manufacturers, the Sporting Arms and Ammunition Manufacturers' Institute, and the Daisy Junior Safety Institute. References made to the Daisy Air Rifle in this manual are based on the Project's experiences through workshops and pilot programs.

The materials were prepared by a committee of educational leaders with broad experience in schools, colleges, the National Rifle Association, and other organizations connected with shooting activities.

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Barbara P. Haskins *of the AAHPER publications department edited the material, and the preparation of the guide was under the supervision of* **Julian W. Smith**, *Director of the Outdoor Education Project. The art department of the Daisy Manufacturing Company, and the* **Howard Retzloff** *Commercial Art Studios prepared the layout, finished art, and many of the illustrations.*

Carl A. Troester, Jr.

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PART I

The Spring-Type Air Rifle As An Instructional Tool

Introduction

Health and the worthy use of leisure, two of the well-known "cardinal objectives" of education, take on new meaning and significance in today's living with its automation, urbanization, and more available free time.

This change in the living pattern creates a specific new challenge to education—teaching the new generation not only how to work but how to live, educating them in the necessary skills and attitudes to enjoy their leisure activities and to benefit throughout their lives from the increased time at their own disposal.

One needs only to view the current scene to know that increasing millions of Americans are turning to the outdoors for adventure and relaxation. They swarm into the open spaces for shooting and hunting, angling, boating, camping, and a wide variety of other outdoor activities.

Education for outdoor living takes on new significance in the "growing up" process. The school curriculum can—and should—provide the basic instruction in skills related to leisure. The home, recreational agencies, and community organizations should give more and more children and youth an opportunity to learn about the outdoors.

Shooting is a popular activity for all age groups. The teaching of shooting skills, gun safety, and conservation concepts for children of elementary school age in classrooms, through clubs, and recreational activities is increasingly important in the educational process. The application of such skills and attitudes through participation in well-balanced educational and recreational programs helps to translate knowledge into skillful performance. To learn to shoot and hunt, the young student needs as good teaching and supervision as he will later be given in driver education, when he gains behind-the-wheel experience.

Marksmanship for Young Shooters has two major purposes. First, the manual indicates some ways in which the spring-type air rifle can be used as an instructional tool in the school curriculum (particularly of the elementary school), and in recreational and agency programs involving young shooters. Second, it provides information on the mechanics and the procedures to be followed when using the spring-type air rifle.

The Committee, in planning the manual, recognized that boys and girls of elementary school age have a great interest in spring-type air rifles. This is illustrated by the large number who own them. It has been adequately demonstrated by the Outdoor Education Project that this interest can be used constructively in the programs of schools and their agencies both in

teaching correct marksmanship and in developing learning experiences relating to conservation, science, physical education, recreation, citizenship, and other phases of an educational program. While many of the examples contained in the manual relate to the elementary school curriculum, the materials are applicable to recreation and other agency programs dealing with children of elementary school age, in which shooting is an appropriate activity. The suggested projects and games can easily be included in the existing structure of the elementary school's curriculum as a classroom experience, club or after-school activity, or in a school-community recreation or youth agency program.

The spring-type air rifle has a place in secondary schools, colleges, and agencies along with .22 rifles or in instances where facilities are not currently available for using firearms. Likewise, the spring-type air rifle has great potential for shooting activities in organized camps, school camps, and in family camping because of its adaptability to a variety of age groups and its use in places where there are inadequate facilities for other types of guns. Like firearms, the spring-type air rifle can be used in teacher education and leadership training programs. Experience in Outdoor Education Project workshops and clinics has proved that it can also be employed effectively in demonstrating methods along with .22 rifles and shotguns. Its use is particularly effective with beginning shooters in a natural progression leading to correct and skillful use of all types of firearms.

Since *Marksmanship for Young Shooters* is a curriculum and program guide and not a training manual, it is recommended that it be used in connection with *Shooting and Hunting* and other publications in the instruction of young shooters. This manual may also serve as an outline, to be supplemented with instruction in secondary schools and older youth groups where the use of the .22 rifle and shotgun is taught. Although brief, we believe that *Marksmanship for Young Shooters* will be of real value to principals, curriculum directors, classroom teachers, teacher education personnel, and recreation and agency leaders in introducing and conducting learning activities for young shooters.

Julian W. Smith

Julian W. Smith,
Director
Outdoor Education Project

1 / Planning the Program

Some of the oldest and most popular pastimes in the history of man are concerned with hunting activities or hurling missiles at some form of target in competitive marksmanship. Slingshots, bows and arrows, and, later, guns have been used. There are estimated to be 25 million Americans who own one or more firearms, exercising their constitutional right to do so. About 8 million spring-type air rifles are in the hands of children and youth. More children should have instruction and marksmanship opportunities on the ranges rather than too many vicarious experiences through television, movie screen, stories, and comics. There is, in many instances, little or no transition from playing "shooting to kill" with toy guns to the use of actual firearms which may be found at home—and sometimes picked up by the children to play "Cops and Robbers." Positive action should be taken by all parents and educators to see that no child anywhere handles a gun without first learning how to use and take care of it.

The procedure used in planning a shooting and gun safety program for introduction into the elementary school curriculum or as a community agency program is similar to the development of any other new phase of study or recreational activity. It should be approached in a similar manner; but, in the case of firearms, interpretation of the program to parents, community leaders, and school board members is particularly important. Some people have fixed convictions on guns and hunting which are generally based on prejudice and misinformation. If, however, the teacher or leader explains the aims and objectives clearly, the obvious advantages of properly supervised instruction over chance parental supervision can be clearly seen.

There are some important points to remember before embarking on a shooting and gun safety program, whether in the elementary school, in a youth club, or community agency.

1 School and organization leaders should receive complete information on the nature of the program, its place in the curriculum or club activity, facilities needed, and over-all cost.

2 The entire teaching staff or agency personnel should participate in the planning. They should also be given the opportunity to study similar programs elsewhere, to have in-service training, and to inspect available instructional materials.

3 Parents should be directly involved in the planning and should understand the objectives, procedures, and conduct of the proposed program. Fathers are often more favorable to shooting and gun instruction activities and know more about what is involved. Preliminary interpretation and explanation should therefore be mainly directed toward the mothers and other school patrons. The following methods are suggested: round-table discussions of purposes, etc.; practical demonstrations at PTA and other group meetings (with or without films and slides); use of local TV stations; and a good description of the program in local newspapers or special

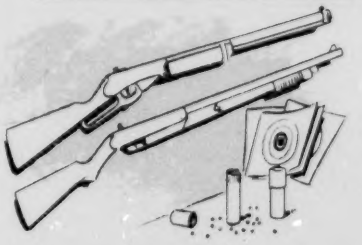
publications. It is also advisable to send personal letters to parents who plan to purchase (or who have already purchased) spring-type air rifles for their children, suggesting that the latter should have instruction on the care and use of the gun through school or community-sponsored activities.

SECURING FACILITIES

Fortunately little is needed in the way of additional facilities for the use of the spring-type air rifle. Most elementary schools are able to use some or all of the following areas:

School gymnasiums and playrooms
Vacant or unscheduled classrooms
Stage and auditoriums
Community rooms
Protected playground areas
School campsites
School halls that have guarded doorways

Community groups often have the use of school facilities and enterprising group members may have areas at home or at business which could be adapted for a 15-foot air rifle range. Remember that the National Rifle Association, the Sportsmen's Service Bureau of the Sporting Arms and Ammunition Manufacturers' Institute, and local gun club members will always be willing to advise.



EQUIPMENT

The equipment and materials are relatively simple and inexpensive:

1 Instructional materials available from the National Rifle Association.

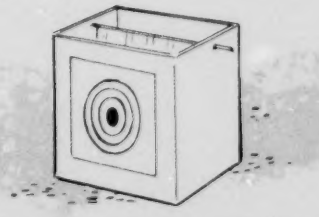
2 Air rifles, pump and lever cocking actions. It is recommended that there be a ratio of one air rifle for every three students in the class or group.

3 BBs, available in case quantities.

4 Targets, official NRA and practice.

5 Backstops which can be made from large store cartons. A canvas, heavy cloth, or blanket may be hung inside the carton to stop the shot and make it possible to reclaim the BBs.

6 Optional items such as membership cards, codes, and awards which may be obtained from the National Rifle Association and the Daisy Junior Safety Institute.



PERSONNEL

Leadership requirements for shooting and gun safety programs for children of elementary school age, both in and out of school, should follow the pattern required for teaching other similar skills. In many schools, the elementary teacher is the person responsible for all classroom activities. In other schools, there are special teachers and counselors who teach or serve as consultants to the classroom teacher in such areas as physical education.

In local recreation agencies and youth organizations, an interested parent or leader may take the responsibility for organizing an air rifle instruction program with the help of the local gun club and NRA members.

In any event, many resource leaders can be used when teaching shooting and gun safety such as sportsmen, conservation personnel, and others who are

qualified NRA instructors. Since the skills in the use of the spring-type air rifle are relatively simple, it is not difficult to train several teachers in a school system, or agency leaders in the community, who will then be able to give adequate instruction to the children. The training necessary can be provided through clinics and workshops sponsored by schools, community agencies, professional organizations, and recreation departments.

Basic skills and fundamentals should be presented in a class or group situation, followed by opportunities to use the skills in games and contests. The latter can either take place in class, club, intramurals, or recreational programs, during the school year or in the summer months.

It is important that, once children have been taught to use the spring-type air rifle, there be ample opportunity for further practice under supervision.

2 / Use in the Curriculum

Instruction in the use and handling of the spring-type air rifle need not be limited to elementary school activities. Its potential use as an instructional tool for many other areas of the school curriculum has often been overlooked. This is particularly important where space, facilities, and leadership are not available for the use of firearms. The spring-type air rifle may, in these cases, be used in the secondary schools and colleges under similar conditions and programming as for the elementary school. If the proper use of guns is taught in the school, a valuable incentive to learning will have been added to the curriculum and the children will gain, at the right age level, a true appreciation and respect for firearms which will serve them well in later years.

Shooting skills and the use of guns can readily be taught in the physical education and school recreation program for children of elementary school age. Certain of the skills and related instruction, as well as actual shooting practice, may be included in school camping programs, activities periods, intramural sports, school clubs, after-school activities, community recreation programs, and in the programs of other youth-serving agencies.

Learning to use the spring-type air rifle is fun and recreation but, as in other games and sports, it also helps to improve hand-eye coordination. It is useful from the teacher's point of view, both for self-testing and for developing a true appreciation of the competitive sports. Besides shooting skills, the instruction program should cover gun safety, respect for other people's rights and property, respect for law and conservation regulations, courtesy, and sportsmanship. Later, the program should include enough information on the local flora and fauna to encourage the students to find out more for themselves. A greater appreciation of conservation concepts, especially in relation to the responsibility of the individual, is also a relevant part of the child's citizenship education.

■ CORRELATION WITH OTHER AREAS OF STUDY

The teaching of shooting and gun safety can be correlated with the teaching of many subjects in the elementary school curriculum other than physical education and recreation. The following are a few suggestions. They may be used on more advanced levels for secondary schools and colleges or integrated in some of the community programs where similar subject areas are involved. Part II, Chapter 1, of this guide contains interesting information

concerning the history of guns that may be used as resource material in social studies.

Many of the suggestions given below are treated in greater detail in the next section when special individual and small-group projects are discussed.

ENGLISH

1 Reports and written themes on student reactions to shooting, guns, and different types of guns.

2 Class presentations on anything to do with shooting sports.

3 Debates on the pros and cons of our right to have guns and use them for shooting sports.

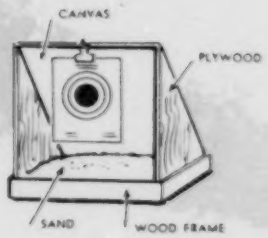
ART

1 Blueprints for class and group projects.

2 Posters and signs for gun safety.

3 Discussion of relationship of color to light conditions, animal camouflage, and hunter visibility.

4 Diagrams and drawings of guns and gun parts. Color overlays for each major breakdown of parts could be made according to class skill.



INDUSTRIAL ARTS

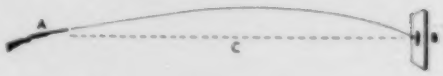
1 Building props, gun racks, showcases, targets, backdrops, target boxes, and rifle stands.

2 Making replicas of guns showing their parts.

MATHEMATICS

1 Measurement of (a) the dimensions used in making various projects, (b) kind and size of shot, (c) distances to target, (d) trajectory of the projectile, and (e) shot patterns.

2 Calculation of sight adjustments, accuracy, and shot percentages.



SCIENCE

1 Study of the relationship of pulleys to a moving target (physical science).

2 Explanation of how each part of a gun works to project a missile.

3 Velocity of the missile, sound waves, effect on the missile of atmosphere and other similar problems.

SOCIAL STUDIES

1 Effect of firearms on the history of man, particularly cultural history.

2 Our heritage of the right to bear arms in the Constitution of the United States.

3 Oral or written reports on current comment on firearms in newspapers and periodicals.

4 The story of guns and hunting.

5 Compilation of scrapbooks and notebooks on guns and shooting.

HOME ECONOMICS

1 Discussion of home safety with regard to proper gun and ammunition storage.

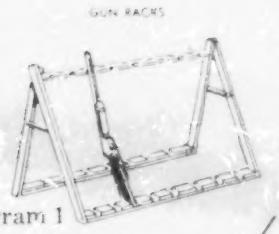


Diagram 1

CONSERVATION AND SAFETY EDUCATION

1 Obedience and respect for game laws and the natural "laws of the land."

2 Collection of news clippings on hunting accidents due to misuse of guns.

3 Learning the *Ten Commandments of Shooting Safety* as found in Part 2, page 15, of this book.

3 / Special Projects

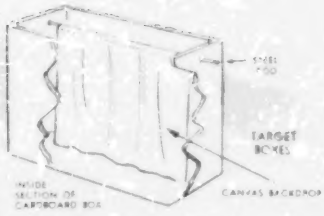


Diagram 2

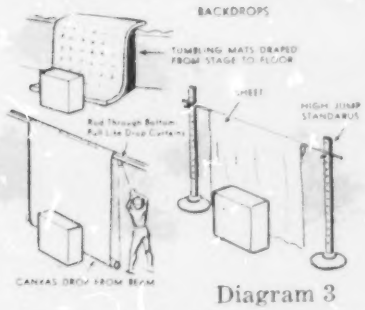


Diagram 3

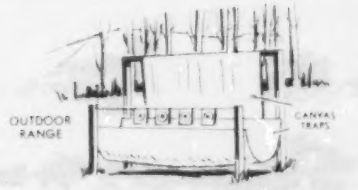


Diagram 4

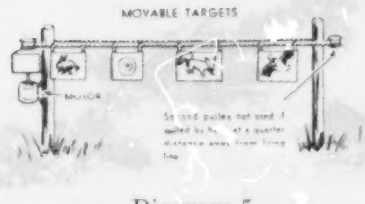


Diagram 5

Effective education should not be measured by the ability to "take apart" skills and experiences, but by "retaining wholeness" in performance and execution of them. For example, a child is taught the fundamentals of mathematics, basic reading skills, and communication skills. When he wants to take a bus for a specified destination, he reads the title, steps aboard, discusses fare, and then uses more learned skills to deposit correct change. This is a test-instance of integrating and applying taught skills.

This principle can be applied in shooting, where a number of subjects are involved. The test would seem to be not of separating and identifying them according to subject matter, but through the usability and application of the sport in the life of the individual. This is a normal and natural procedure in the elementary school.

Below are listed special projects connected with a program of instruction in the use of the spring-type air rifle. A classroom teacher or group leader may assign different tasks to individuals or class and group committees. These projects are not related to the improvement of marksmanship skills or shooting activities. They take advantage of the student's natural interest in anything to do with guns to develop other aptitudes and skills. In some instances, these projects should be planned on a communal basis by students, teachers, and parents together. In others, they will be organized by the physical education teacher, the classroom teacher, a father in charge of a club, or by a civic group sponsoring meets or similar special events. The list is by no means exhaustive, it covers only a few of the possibilities. Group planning for the total program (which will include these special projects) is advisable so that there is as little overlap as possible and that all concerned work cooperatively.

1 **Notebooks and bulletin boards.** Many children in the upper elementary grades enjoy keeping notebooks and preparing material for bulletin boards. Records can be kept of instruction and discussions in marksmanship classes with other interesting information such as scoresheets.

2 **Making equipment for the Program.** Equipment can be designed and built by teachers, children, and parents working together.

a *Gun racks.* These are used for storage and handling of equipment during instructional periods. See Diagram 1.

b *Target standards.* Boxes with canvas drops to reclaim BBs (see Diagram 2); backdrops for indoor and outdoor use (see Diagram 3); outdoor target ranges with screening to reclaim BBs (see Diagram 4); and movable targets (see Diagram 5).

c *Range Aids.* Gun standards to use on the outdoor firing line (see Diagram 6); straw and block for loading BBs (see Diagram 7); firing range signs posted for the purpose of safety.

3 **Targets.** Drawing and duplicating animals or other types of targets and making cutout cardboard figures for a game identification trail.

4 **"Licenses."** After discussion on the standards to be achieved in gun handling, the children should design their own hunting licenses, and number and register them correctly. This will give the children first-hand knowledge of the privileges of a hunting license and the penalties for misuse.

5 **Hunter safety training courses.** Committees of children should design, map, and work out their own field training course by scale. They should also make and collect obstacles such as fences, cutout figures, rowboats, streams, and brush. (See Diagram 8)

Diagram 6

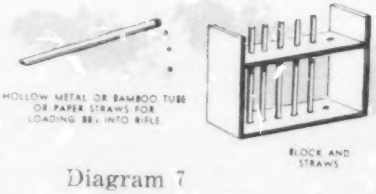


Diagram 7

FIELD DEMONSTRATION AREA

Pointers for Instructor

Only two or three students should go through the area at one time.

No one should be ahead of the shooter. The instructor should follow the students.

Pop-up targets can be operated from behind the students by using a long string or wire.

Do not ignore other advantages of test besides hunter safety such as ability to see and recognize camouflaged objects quickly and accurately.

Even paper drawings fastened to thin masonite or heavy cardboard and made durable with a plastic spray, shellac, or varnish will suffice if nothing else is available.

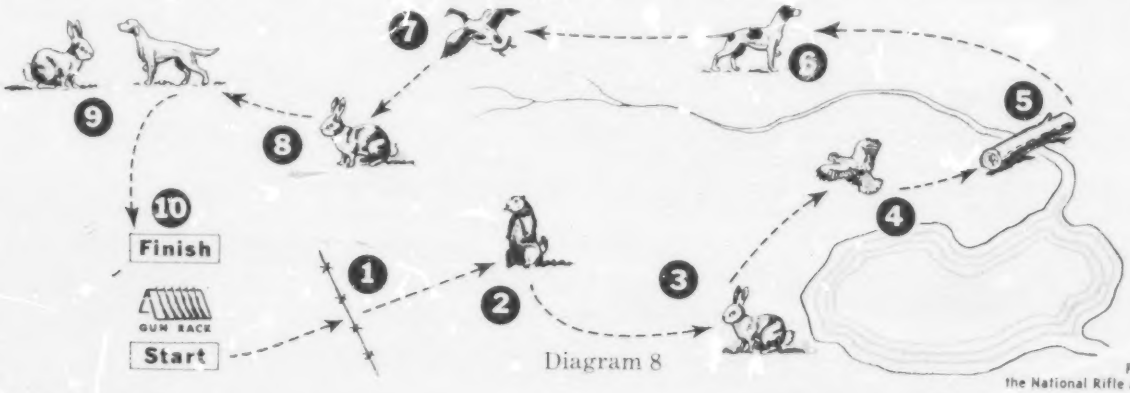


Diagram 8

Prepared by the National Rifle Association

START *Rifle in Rack*

Rifles should have shooting tubes loaded with BBs but removed from guns. Insert shooting tube, but *do not* cock gun.

1 *Cross Fence*

Demonstrate safe techniques of crossing fences. Simulate unloading gun by "opening cocking lever." After leaving fence area, cock gun. The gun is now loaded ready to fire.

2 *Pop-up Target—Woodchuck*

If companions are in safe zone, shooter may fire. Cock gun if fired.

3 *Pop-up Target—Rabbit*

Should not fire because of water surface—possible ricochet in background.

4 *Stationary Target—Legal Bird*

If companions are in safe zone, shooter may fire. *Do not* cock gun if fired. If not fired, discharge gun in safe firing area.

5 *Walk the Log*

Gun is not cocked, simulate unloading gun by "opening cocking lever." (If obstacle is not possible, use some other situation where footing is a problem.) After leaving log area, cock gun.

6 *Stationary Target—Dog*

Part of learning to see outdoors. Camouflage dog in brush or grass so it isn't easy to distinguish. Shooter should obviously not fire.

7 *Stationary Target—Illegal Bird*

This is a recognition problem. The target should not be easy to see. The shooter of course should not fire.

8 *Pop-up Target—Rabbit*

No firing because of building in the background.

9 *Stationary Targets—Dog and Rabbit*

Targets are set so that dog would be endangered by shot at rabbit. Neither should be easy to see. Gun is still cocked, discharge gun in safe firing area.

10 *Finish—Rifle Rack*

Check proper safety precautions. Check gun to be sure it is not cocked. Remove shooting tube. Rack gun and tube.

Scoring. A suggested scoring system would be 8 points per station (10 in all) and the remaining 20 points for safety throughout the route.

6 **Reporting and research work.** A group of students should report on actual trips or special research investigations they have undertaken.

7 **Raising funds.** Projects sponsored by children to raise money for equipment.

8 **Demonstrations.** These may be in play or story form and be given for the school and community.

9 **Arts and crafts.** Plaster casts of animal and bird tracks are a good example.

10 **Outdoor photography.** Competitions could be held by community groups for unusual shots.

11 **Report on any local ordinances pertaining to the use of guns.** Later, there should be discussion by the whole group under teacher supervision with NRA qualified instructor and law enforcement officers serving as resource leaders.

12 **Research projects on types of guns.** Hand guns, all types of rifles and shotguns.

13 **Historical research.** The role of the gun in the development of our country. Another project could be the study of the history of firearms.

14 **Field trips.** Planning field trips to a gun museum or a visit to a gun collector (relevant lists can be obtained by writing to the National Rifle Association).

15 **Organization of an Air Rifle Club.** Information may be procured by writing to the National Rifle Association or to the Training Division of the Daisy Manufacturing Company. Local certified rifle instructors' lists are also furnished upon request by the National Rifle Association.

16 **Outdoor Education.** Encouragement of research in the various other outdoor interests of the pupils.

17 **Community surveys.**

- a Determination of local hunting areas. Maps can be drawn to scale and reproduced for student use. They should indicate roads and distances from the school or community center and include points of interest. They should also show hazards and types of animal, bird, and plant life to be found. This project could lead into numerous other projects in the study of game (habits and habitats), the legality of hunting, seasons, limits (and why), identification and conservation concepts, the part non-game animals and birds play in nature, and game management schemes.
- b Possible shooting ranges in the area should be determined and indicated by map.
- c Capable personnel for teaching and helping out in a club or hunter safety program should be recruited.

18 **Survival.** Construction of emergency shelters and practice in survival techniques, animal tracking, identification, and management.

GAMES AND CONTESTS

Games and contests can be organized to implement the more formal instruction. Below are ideas for some shooting games which may prove useful after the students have become proficient in handling the spring-type air rifle.

1 **Moving targets.** Operated by hand or motor pulley (see Diagram 5).

2 **Field demonstration course.** Use suggested scoring system (see Diagram 8).

3 **Skame.** Skame (which is a combination of the words *skill* and *game* just as Skish is a combination of *skill* and *fish*) is a game involving accuracy in target-shooting at different distances (see Diagram 9). Scoring can be kept in the same way as in skish and its variations. Each player takes 20 shots—2 at each of 10 targets. A bullseye from the first shot at each target would count 6 points; from the second shot, 4. Another variation of skame would be for each player to begin with a score of 100. Out of 10 tries, the final score is determined by subtracting the number of inches (up to a maximum of 10 inches) that the shot is away from the target at each of the 10 tries. The highest possible score would be 100 (10 bullseyes) and the lowest (minimum 10 each time), 0.

4 **Balloon courses.** The contestants try to burst balloons at given distances or as sighted on a course.

5 **Target challenge.** One person picks a field target and challenges another to a competitive marksmanship match. The nearest on target scores 1 point. If a hit is made, a 3-point bonus is scored. The best marksman has the choice of the next target.

6 **Progressive targets.** Ten animal outlines are set up, and the marksman must hit each successive target before moving on to another. Each shot is counted as 1 point, and the lowest score wins. To avoid too slow a progression, a maximum of 5 shots can be allowed on each target.

7 **Self-testing.** Each player chooses his own target area and practices by himself, trying to improve on his own past performances.

8 **Team Shoots.** Informal marksmanship competitions with competing student teams vying for points on accuracy.

9 **Tournaments.** The National Rifle Association can give full details on the requirements and awards.

10 **Club competitions.** Several types of shoots can be organized by a club or community group. An example might be boys versus girls. Some form of prize-giving could be arranged.

11 **Special events and contests.** Schools, community leaders, and parents could get together to arrange special competitions with prizes and awards.

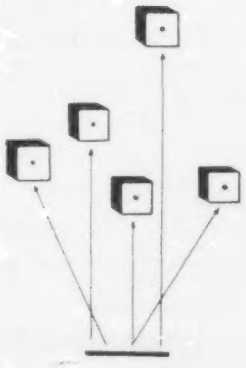
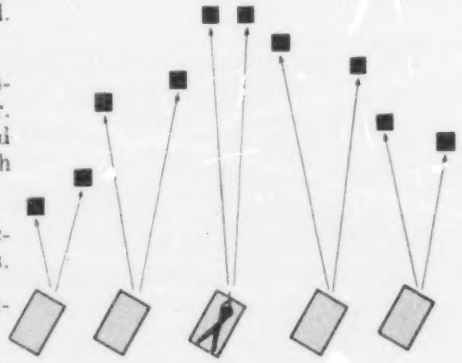
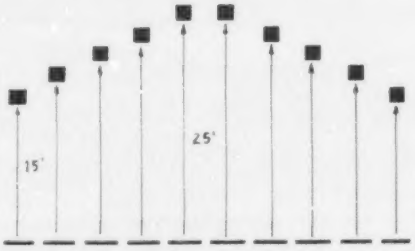
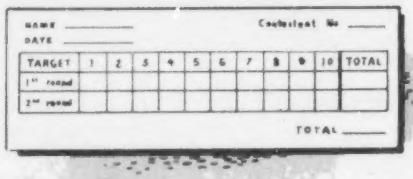


Diagram 9







USE OF THE AIR RIFLE IN THE HOME

Much of the value of the instruction on the spring-type air rifle given in the school or community agencies will be evident in its recreational use in the home. In the recreation room, garage, or backyard, the young shooter with other members of the family will find fun in marksmanship and informal contests. He will be able to show his family how skillful he is and how much he has benefited from his schooling in handling guns. Parents appreciate this careful and constructive use of the gun for wholesome recreation that results from such a good instructional program. Family outings and camping trips will offer added opportunities for family participation in marksmanship and skillful gun handling. In some instances, the young shooter will be the example for other members of the family and neighborhood groups. He will be able to show them how to handle guns and will, himself, make a natural transition to firearms at the appropriate age.

PART II

Teaching Marksmanship

Introduction

Teaching Marksmanship is a brief outline of an instruction course on how to shoot with the spring-type air rifle. It is not intended to be a complete text on the shooting skills required. Although the techniques involved are simple and easily learned, the instructor is recommended to supplement this teaching with *Shooting and Hunting*. The latter contains many useful suggestions and references applicable to the spring-type air rifle. The National Rifle Association and the Sporting Arms and Ammunition Manufacturers' Institute also have additional material and teaching aids available which can be used for young shooters.

When dealing with *Gun Handling* and *Field Training* it is strongly recommended that instructors adapt the gun handling tests for skill and knowledge, hunter safety, and home safety given in *Shooting and Hunting* to the needs of elementary school-age children and the use of the spring-type air rifle. The knowledge and skill tests were developed by Jack F. George in his doctoral study at Boston University. The New Hampshire Fish and Game Department and the State Department of Education cooperated in the formulation and use of these tests. They have been given to students for many years and are of great practical value. Even those questions which could not be directly related to the use of the spring-type air rifle are of use to the young shooter if he accompanies his family on hunting expeditions.

History of Guns / 1

The history of firearms begins with the invention of gunpowder. It was discovered by the Chinese and first used just for making noise. Accidentally, it was discovered that the power generated by the gasses formed by burning gunpowder could be used. Many types of containers to hold the burning powder were devised. Finally, the metal pipe-like object we now call a gun came into being.

The guns first used by individuals were called *hand cannon*. They were simply small cannon carried in the hand, sometimes supported against the body. The hand cannon was like a short piece of pipe closed at one end. At the closed end there was a small hole through which the powder was lit. This hole was called the "touch hole." They were just used to frighten the enemy and later small stones and bits of metal were fired from them. The hand cannon was inefficient, hard to handle, and required a very stout fellow to operate it.

After many years, various types of handles began to appear on the hand cannon, and it was no longer possible to describe it as such. Hand guns became known as *pistols*, and shoulder guns finally became known as *muskets*.

The musket was the father of all modern shoulder arms. Its handle was constructed so that the gun could be placed against the shoulder for firing. Since the days of the hand cannon, the barrel had become smaller in diameter and longer in length. Lead balls were molded to fit. Accuracy and efficiency had improved and the shoulder arm had become a standard piece of equipment for the soldier and the pioneer. The modern *shotgun* is quite similar to the musket. The inside of the barrel (the bore) is smooth; sights are not so important and are not used in the same manner as for rifles and pistols. A shell containing many small pellets has taken the place of the single lead ball. The rifle came into existence in the mid-1700's. Spiral grooves were cut inside the barrel of the formerly smooth-bored musket. The grooves were called "rifling" and caused the bullet to spin like a football or top as it left the rifle. The result is greater accuracy and greater range. Except for shotguns, all modern sporting firearms—including rifles, pistols, and revolvers—have rifling.

Shooting sports are historically one of America's oldest and most popular forms of recreation. The gun, like the axe and the plow, was a tool of frontier days. The musket and the long rifle provided sport in a variety of marksmanship contests in many colonial communities. It is understandable why there is so much interest in the shooting sports. They provide a type of active and wholesome recreation greatly needed by this generation of youth.

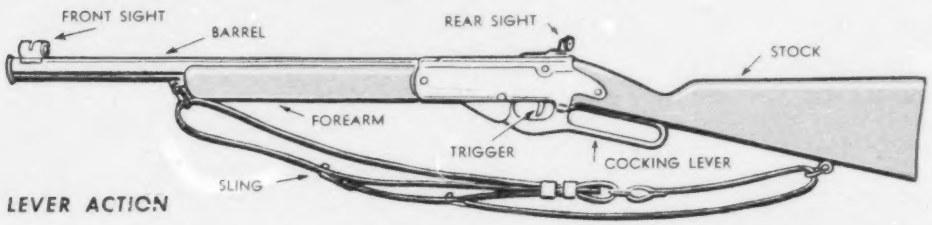
The spring-type air gun, like sporting arms, has always brought enjoyment to young shooters. The first gun of this kind goes back to the blow gun used in the early history of civilization. It is still used today by many native tribes throughout the world for bird and small game hunting. Children are familiar with them as "bean blowers" or "pea shooters."

The history of the air gun parallels that of firearms, as it started back in our history with the description of man blowing pebbles through hollow reeds or canes with enough force to stun or kill game. Historical evidence of its use goes back to the fifteenth century. The principle of air or gas to drive a ball or pellet was used in developing the air gun. Here, air is compressed and released to propel the projectile by two different methods. With one method, a spring and plunger is compressed by means of a lever. The spring is held by a part of the trigger. When the spring is released, air is compressed in a chamber in front of the plunger. The compressed air is driven from the large chamber through a small air tube or outlet. This flow of air propels the projectile. The other method—a pump-up or pneumatic method—merely stores the compressed air as it is pumped up. It releases the air on pulling the trigger to open an air outlet. This released air propels the projectile.

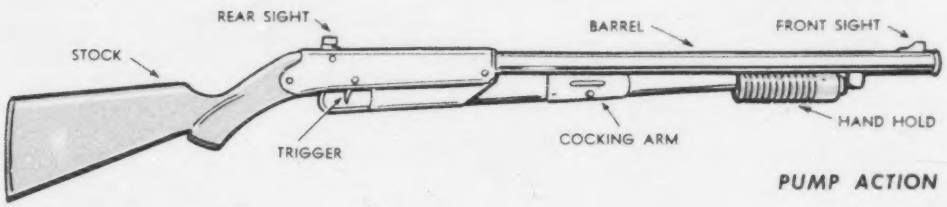
Air guns of these two types were made in one form or another in Europe as early as 1600, later in the United States around the mid-1800's. The Daisy, for example, one of the best known of the spring and plunger type air guns, was developed in 1888. Like other firearms at that period, this gun went through a period of development and experimentation. In 1890, a break type of cocking device was introduced.

The gun broke open just forward of the stock, still loading a single shot down the barrel. The under level type of cocking action came into being in 1901, following the design of the lever action rifle that won the West. This was of the single shot and repeater type load. In 1913-14, still another design was introduced following the shotgun slide or trombone cocking action in use at that time. It became known as the "pump gun." This was the first force-feed type of gun, and meant that a limited number of BBs were loaded into a tube and pressed into firing position by a spring on each individual cocking action. Over the years, many improvements have been made in the interior and exterior of the gun, but the basic principle of the spring action still remains.

The BBs were originally lead shot. However, the irregular shape of the lead shot brought the steel BB into being. The copper-coated BB was a later development in the manufacture of air rifle shot.



LEVER ACTION



PUMP ACTION

All guns are harmless unless they are mishandled. Skill with guns, like any other skill, depends upon the habits and training of the people who use them. This is the intermediate stage for the young shooter who has been playing "Cowboys and Indians" with his toy gun and pesters his father to buy him a gun "like dad's." Learning correct gun handling with a spring-type air rifle will develop in the child the habits and training necessary for handling all types of firearms.

Like other experiences, the skill of correct gun handling takes on real meaning with repeated practice. If the young shooter learns *why* as well as *how* to handle his gun, it becomes a meaningful experience. Understanding the function of the real gun versus the toy gun disassociates the real gun in the eyes of the young shooter from the toy gun with which he used to play "Cowboys and Indians."

Some history of the development of firearms is helpful to the youngster in learning about the operation of the modern-day spring-type air rifle. It is also necessary for the instructor to spend some time explaining the functions of the various parts of an air rifle in the classroom before taking the boys and girls out onto the range.

Every shooter should learn the following rules. Students should rewrite the rules in their copybooks or organize a special classroom project to design a poster so that the rules are always on class display whenever guns are under discussion.

1 Treat every gun as if it were loaded and ready to shoot.

2 Never carry a gun into your home, camp, or public place loaded or cocked.

3 Always be sure your gun barrel is clean and not plugged.

4 Carry your gun so that you can control the direction of the muzzle, even if you stumble.

5 Be sure of your target before you pull the trigger.

6 Never point a gun at anything you do not want to shoot.

7 Guns not being used should always be unloaded.

8 Never climb a tree or fence or jump a ditch with a loaded gun.

9 Never shoot at a flat, hard surface or the surface of water.

10 Respect other people's property.

CARE AND STORAGE

Since the gun is a mechanical device, it does require a certain amount of care. Young shooters should realize that proper cleaning and storage of guns and ammunition are as important for their fun and recreation as learning the shooting skills. Guns and ammunition should be stored and locked in different racks or cabinets.

The cleaning and care of the air rifle ensures its ability to perform properly. The instructor should demonstrate first and then have enough air rifles available for the students to work in groups. Remember the cardinal rule: *Keep BBs locked when showing students guns in the classroom.*

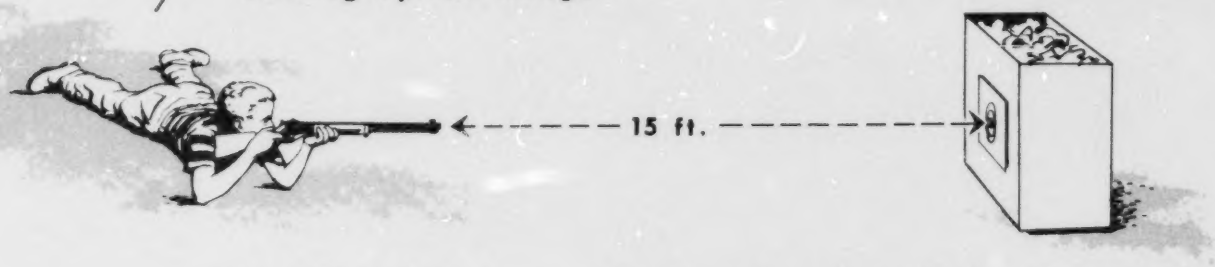
This is the procedure to follow: Check the gun to be sure it is not cocked, remove the shooting barrel, and turn the gun upside down. Empty its contents, if any, and inspect the tube for BBs. Clean the shooting tube by

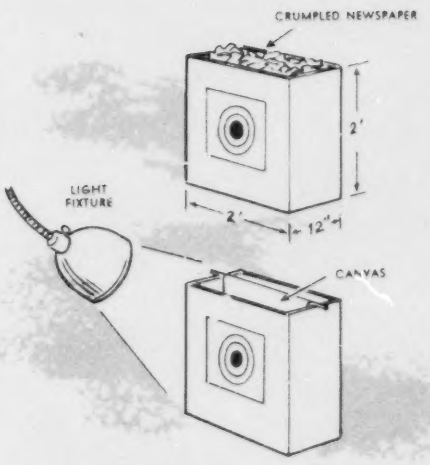
passing an oil-covered patch through the tube with a wire or cleaning rod. Inspect the shooting barrel. Place two or three drops of medium-grade motor oil in the hole on the barrel, marked "Oil Here." Aim toward the ground or into a suitable backstop and fire the gun. The gun may spray oil with the first firing after oiling—be careful. Cock and fire several times. This action oils the plunger and assures maximum power. Oil the trigger and cocking mechanism frequently. Keep the metal exterior covered with a thin oil film.

The spring-type air rifle made in the United States is a low power air gun. The power is limited at the factory by the size of the spring used in the gun. It is not a high power pneumatic, gas, or compressed air gun. It cannot be pumped up to increase its power. The air is compressed by the spring action, and it is compressed and released at the same time. There is no storage of air under pressure. The spring is compressed to the same degree every time the gun is cocked. Therefore, the same amount of air power is available for each shot.

Two types of cocking actions make the inner working of the pump and lever action guns slightly different in the way the BBs feed into the shooting barrel. The pump action has a force feed which consists of a spring follower forcing the next BB into place. The lever action may be gravity fed with a small trough feeder in the base of the shooting tube. When the gun is held in an upright position, the BBs lie in the trough and, on cocking, the next falls in place. The cocking action and BB feed are the only differences in the two styles of guns. The number of BBs held by the pump gun is 50; the lever action gun holds several hundred.

3 / Setting Up the Range





The students, parents, and teachers can work together in setting up the range for teaching the use of the spring-type air rifle and for making equipment. NRA qualified instructors, sportsmen, and law enforcement officers will be very happy to help and advise.

The range or shooting site requires a very small amount of space. The overall area of an indoor range should measure 25 to 30 feet in depth and as wide as the number of firing points to be used. The following space is needed for the range.

1 The shooting distance, indoor or outdoor, should measure 15 feet from the firing line to face of target. No part of the shooter's body should extend beyond the firing line.

2 The backstop area, 2 to 4 feet in depth.

3 The firing line area, 10 feet in depth and 4 feet in width per shooter.

4 Number of shooting positions (firing points) may range from 4 to 10 depending upon available space.

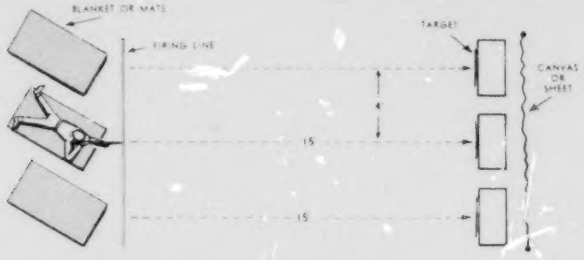
Range equipment for spring-type air rifles includes the following materials:

1 **Backstops:** Corrugated (cardboard) boxes measuring 12 inches or more in depth and at least a two-foot square front surface. These boxes may be filled with crumpled newspaper packed tightly or medium-weight canvas hung freely from inside the center of the box. As an additional precaution against a stray shot, hang a large piece of canvas or a bed sheet as a backdrop, behind the boxes.

2 **Firing Line**

a A line should be marked out 15 feet from the target. Blankets or mats should be provided for the shooters.

b One air rifle for each firing position is a requisite, along with a supply of BBs, and NRA official single-bull targets.



SHOOTING ON THE RANGE

Only when the instructor is sure that the students know how the spring-type air guns function should he take them onto the range to learn the shooting skills. The younger the age group that he is teaching, the longer time he should give the students to accustom themselves to the handling of these guns. The learning process need not be dull. Part I gives many practical suggestions on classroom projects. When the young shooters realize that they will be able to use guns after they are thoroughly familiar with them, they will learn eagerly enough.

An instructor may, of course, find it more suitable to commence teaching on the range, rather than in the classroom. In this case, no ammunition will be used until the students know how to handle the guns. Actual firing can be simulated through the procedure of dry firing without damage to the spring-type air rifle.

Shooting Skills / 4

Learning how to shoot with a spring-type air rifle is a logical first step towards becoming an accomplished shooter with any type of firearm. The shooting skills are relatively simple but, as with correct gun handling, the basic fundamentals for good shooting should be learned from the beginning.

Here, shooting skills and positions are briefly discussed to show teaching progression. Instructors should use the manual on *Shooting and Hunting* since many suggestions on teaching techniques are applicable to instruction on the air rifle and would be useful in classes for children of elementary school age. Much practice is required in order to shoot well and proper incentives make this practice enjoyable. The NRA Qualification program provides awards from the rank novice to the experienced shooter. Details are available from the NRA.

■ COACH-PUPIL RELATIONSHIP

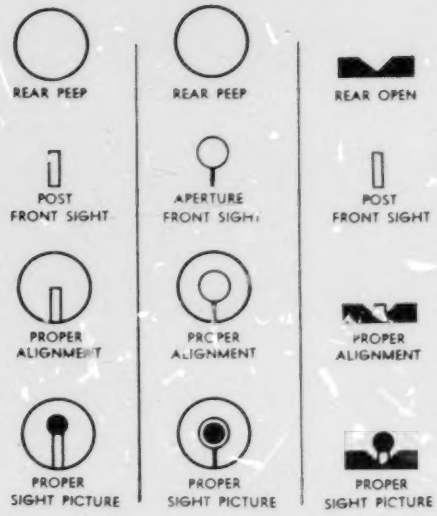
Young shooters learn effectively when they are teaching each other. The instructor of the class should choose a "coach" for each shooter. The "coach" then points out the mistakes the shooter makes. Although he is there to help the shooter, the "coach" is still responsible to the instructor.

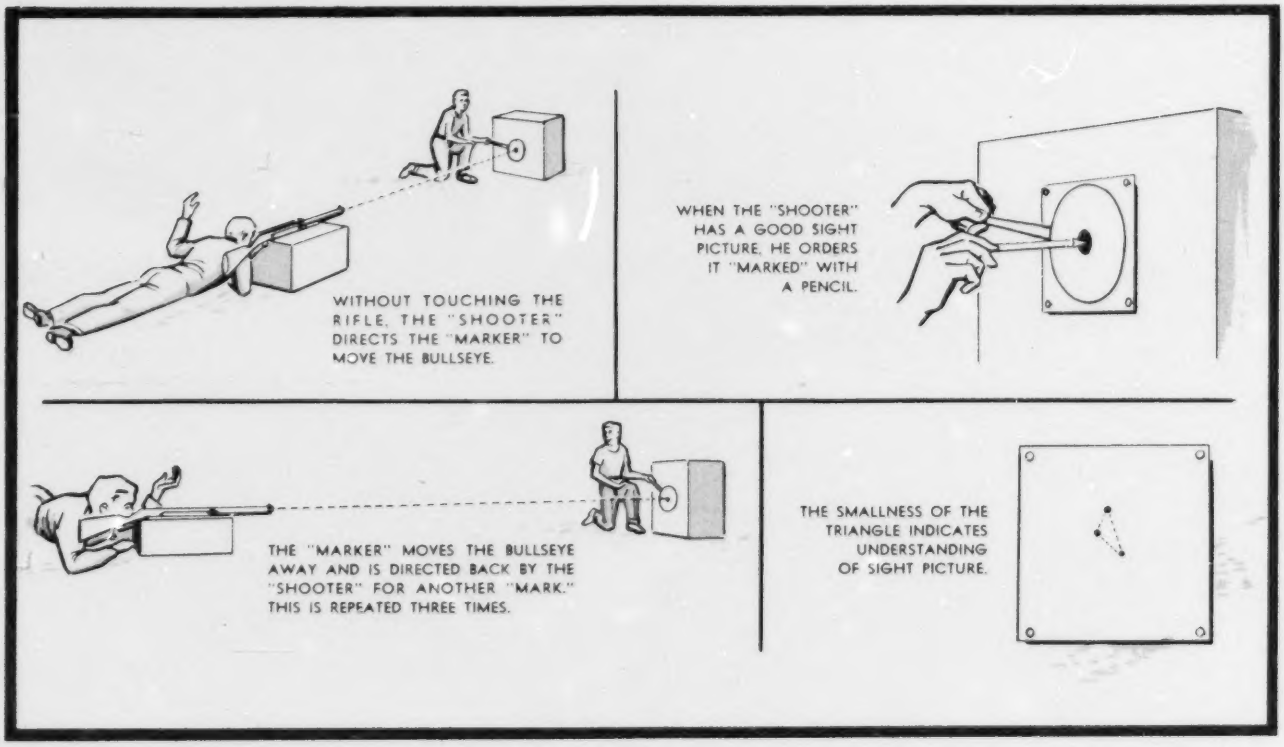
■ DRY AND LIVE FIRING

All shooters learn to shoot first *without ammunition* so that they establish a routine and know exactly what to do in the right sequence. This is called *dry firing*. *Live firing*, or shooting with ammunition, comes later.

■ SIGHT ALIGNMENT AND SIGHT PICTURE

The spring-type air rifle is aimed by aligning the front sight and rear sight with the target. Perfect alignment of the two sights is very important. With a post sight, correct sight picture involves making the target appear to sit on top of the front sight while it is in correct alignment with the rear sight. When the front sight is of the aperture type the target is centered in both front and rear sights.




WITHOUT TOUCHING THE RIFLE, THE "SHOOTER" DIRECTS THE "MARKER" TO MOVE THE BULLSEYE.
WHEN THE "SHOOTER" HAS A GOOD SIGHT PICTURE, HE ORDERS IT "MARKED" WITH A PENCIL.
THE "MARKER" MOVES THE BULLSEYE AWAY AND IS DIRECTED BACK BY THE "SHOOTER" FOR ANOTHER "MARK." THIS IS REPEATED THREE TIMES.
THE SMALLNESS OF THE TRIANGLE INDICATES UNDERSTANDING OF SIGHT PICTURE.

BREATHING

Breathing affects the rise and fall of the chest—and the gun muzzle. Students should learn to control their breathing. They should take several deep breaths and learn just how much they should exhale before they can hold easily and long enough to squeeze the trigger.

TRIGGER SQUEEZE

Pressure on the trigger, once begun, should not be stopped. The beginner should hold the best possible sight alignment and squeeze the trigger until the gun discharges. Squeezing the trigger is comparable to squeezing a drop of liquid from a medicine dropper.

FOLLOW-THROUGH

After the gun fires, the shooter should continue to look at the target for at least two or three seconds before relaxing from the shooting position.

RHYTHM

A shooter must learn how to do the same thing in exactly the same way at all times. Rhythm can make the difference between the good and the mediocre shooter.

POSITIONS

There are four shooting positions—prone, sitting, kneeling, and standing. Certain general rules apply to all of these positions. When shooting, the student should check himself to see that he is observing these rules at all times. The directions below are given for a right-handed shooter.

a Half face to the right before assuming any position.

b Upon assuming any position there is some point to which the gun points naturally and without effort. If this point is not the center of the target the whole body must be shifted so as to bring the target into the proper alignment.

c The right hand grasps the small of the stock. The right thumb may be either around the small of the stock or along the right side of the stock.

d The gun rests in the palm of the left hand.

e The left elbow will be as nearly under the gun as it can be placed without appreciable effort.

f The trigger should rest about midway between the tip and first joint of the finger. The hand should be placed so no part of the trigger finger drags against the stock.

g The cheek is always pressed firmly against the stock and placed as far forward as possible without straining. It is desirable to have the eye as near as possible to the rear sight.

PRONE

Prone shooting is the steadiest of the four standard positions and should be the starting point for the beginner. The body lies at an angle of about 45 degrees with the line of aim. The spine is straight, legs well spread, and the insides of the feet are as flat on the ground as possible. The upper part of the body is supported by the triangle formed by the trunk and upper arms. The gun is naturally supported, and not tightly gripped by either hand.

SITTING

In the sitting position the feet are well spread, the heels braced and the body inclined forward so the elbows may be locked over the knees. The left elbow should be directly under the gun. Variations of foot position include crossing the ankles or placing the feet together with the knees spread, but in no case may the knees or thighs touch the ground.

KNEELING

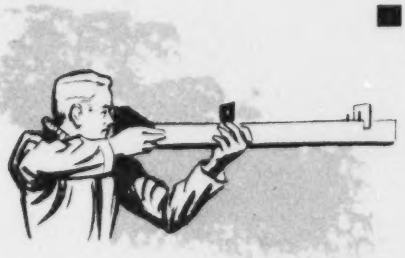
The kneeling position may be assumed in one of two ways. In the low position, the left foot is extended as far forward as is comfortable and the right leg is placed flat on the ground with the foot also flat and rotated inward. The shooter sits on the side of his right foot.

In the high position, the shooter sits on the right heel instead of the side of the right foot. In either low or high position, the left knee supports the left arm two or three inches above the elbow. The right elbow should be extended at an angle to the body. It is not supported and may be held in a relaxed position.

STANDING

The standing position also has two variations. In the first, the shooter stands almost facing the target, feet spread apart and knees straight but relaxed. The gun rests on the heel of the left hand. The left elbow is directly under the gun and not allowed to rest against the body, the butt of the gun is held high against the shoulder by the right hand grip on the stock, making it possible for the shooter's head to be held nearly erect. Right elbow should be raised to shoulder height or higher.

When using the second standing position, which is a method recommended by the NRA, the left hand slides back toward the trigger guard and the gun rests on the tips of the fingers and the thumb with the arm placed against the body and the elbow supported by the hip. The body is inclined further back in this position and the left hip thrust forward to support the elbow.



■ SUMMARY

Commencing with the prone position, teach shooting techniques under dry fire. Emphasize the right positioning and see that each student is comfortable. After considerable practice in getting the correct sight picture using the sighting bar, Paige sighting device, and triangulation, teach the trigger squeeze, breathing, etc. Then, using ammunition, practice again. When the students are proficient in live fire and firing closely grouped shots,

tackle the problem of sight adjustment. The shooters should move the rear sights in the direction in which the hits on the targets should move. For example, if the hits are low and to the right, the rear sight should be moved up and to the left.

Range Procedure for the Spring-Type Air Rifle / 5

Young shooters will learn best by establishing a routine for themselves which they will follow whenever they shoot. Correct firing line procedure should be emphasized at all times. The directions below should first be practiced under dry fire until everyone is thoroughly familiar with all the steps.

1 Lay out spring-type air rifles, one for each firing position, with muzzle facing backstops.

2 Targets, identifiable by shooter's name, may be attached to face of corrugated backstops.

3 Shooters will now take up their positions on the firing line. Three boys will be assigned to each firing point.

   a *No. 1 student*, referred to as *shooter*, will adopt the prone firing position, facing his respective target.

   b *No. 2 student*, referred to as *coach*, will kneel at the shooter's side.

   c *No. 3 student*, referred to as *spotter*, will stand directly behind the shooter.

4 The instructor is now ready to instruct in firing line procedure.

Firing Procedure Commands are as follows:

1 At the command, *FIRST RELAY ON THE FIRING LINE, FIRE ONE ROUND*, shooters take their positions on the firing line, noting number of shots to be fired.

2 At the command, *READY ON RIGHT — READY ON LEFT*, shooters call out if *Not Ready*.

3 At the command, *COCK THE GUN*, prone shooter picks up gun and hands it to No. 2 student or coach, who cocks gun from kneeling position and returns it to shooter.

4 At the command, *READY ON THE FIRING LINE*, shooter places gun in shooting position.

5 At the command, *COMMENCE FIRING*, shooter fires one round on target and then places gun on floor. This procedure will be continued until five rounds have been completed.

6 At the command, *CEASE FIRING*, immediately everyone stops, opens the cocking lever to make sure the gun is not cocked.

7 The instructor will then rotate the students at the firing positions. No. 2 student, or coach, becomes shooter; No. 1 student, or shooter, becomes spotter; No. 3 student, or spotter, becomes coach.

8 As the youngsters gain experience with this procedure, command No. 1 may be changed to, *FIRST RELAY ON FIRING LINE, FIRE FIVE ROUNDS*, the coach cocks and the shooter fires five successive shots and the gun is placed on floor, muzzle forward.

METHOD OF SCORING

When the instructor is satisfied that all shooters have become familiar with this range procedure, he will want to start actual firing.

In live firing, the same procedure as in dry firing will be followed. In addition, of course, when the shooters have completed firing five rounds, they will then proceed in an orderly fashion to retrieve their respective targets, replacing them with new targets for the next shooter.

Five shots only on each target will be acceptable for scoring. Any target with more than 5 shots score only the required number of shots at lowest value. Shots touching a scoring ring receive the higher value. Shots outside the scoring ring are scored as misses. A BB may be used to plug the shot hole, if in doubt.

6 / Field Training

The value of the spring-type air rifle as a training tool has been mentioned in other sections of this guide. While the spring-type air rifle is not used for hunting, it can be used in teaching skillful gun handling in the field as suggested in some of the special projects mentioned in Part I, Chapter 3. Under the supervision of parents, teachers, and leaders, young shooters can "walk through" many of the situations confronting the hunter with correct *carries* for crossing fences, walking through the woods, and in numerous other natural circumstances. An ideal situation occurs when the parents, skilled in the use of guns, accompany their young shooters when they have their first guns (often air rifles). Together they enjoy outings in the field for target shooting or simply pretending they are on a hunting trip. This is where good concepts and attitudes toward proper gun handling, conservation, and citizenship can be developed. When parents, for one reason or another, do not have any opportunity to do this, the best alternative is the teacher or youth leader who supplements his teaching with field experiences. The same procedure should be followed when the boy or girl has his first .22 rifle or shotgun. Such experience helps to bridge the gap between knowledge and behavior in the education of young shooters.

The following brief outline, supplemented with information contained in *Shooting and Hunting* and in the publications of the NRA and SAAMI, suggests some of the learning situations that occur in the use of guns in the field.

■ CARRIES

There are several ways to carry a gun properly. One of the better ways is to hold the forearm of the gun in one hand and the small of the stock in the other with the barrel pointing upward.

1 Basic principle of a proper carry is muzzle control.

2 It always points "away."

3 Carry a loaded gun only when actually in hunting area.

4 If a gun is provided with a safety, it should be on until the shooter is actually ready to shoot.

5 Keep finger outside the trigger guard.

ZONES OF FIRE

Each hunter should be aware of his shooting area as well as the position of the other hunters.

1. Plan who is to shoot where.
2. Take care in swinging with moving target.
3. Check backstop—ultimate flight of bullet if target is missed.

VISIBILITY

Inability to see the target clearly means no shooting. The shot should be held until game or target is in clear view. Never shoot at "sound" or "motion."

OBSTACLES WHICH NEED EXTRA CARE

Movement through the hunting area can be greatly hampered by objects underfoot. Special care must be exercised under such conditions to ensure safety in the field. Beware of rocky ground, underbrush, logs, and railroad tracks. Take care when crossing fences, stiles, and gates.

TRANSPORTATION

Special care should be observed when taking guns in and out of boats and automobiles. Remember!

BOATS

Take same care with gun as when going over fences.

Unload.

Maintain muzzle control.

IT'S STILL A GUN! NOT A BOAT HOOK!

AUTOMOBILES

Look up state laws on loaded guns in cars.

Never fire from car or road.

Gun should always be unloaded.

Watch muzzle control.

HANDLE BY THE HANDLE!

SOME SAFETY CHECKS

The "safety" may not work. Don't depend on it completely.

The gun has no brains of its own.

When in doubt—unload it.

Wherever you are—

WHEN YOU STOP, UNLOAD IT.